DETAILED ACTION

Status of the claims

The listing of claims filed 09/23/09 is acknowledged and has been entered. Currently, claims 1-16 and 18-20 are pending and under examination.

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

3. Claim 10 is objected to because of the following informalities: Claim 10 the recitation "fur the solid support" should be --for the solid support--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-16 and 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 1-2 the recitation "rapid ELISA" is vague and indefinite. The term "rapid" is a subjective term lacking a comparative basis for defining its metes and bounds. There is no definition provided for the term in the specification and it is unclear what Applicant is trying to encompass. See also deficiencies found in claim 16.

Claim 1 is vague and indefinite in reciting "first monoclonal antibody, washing with buffer to remove unbound monoclonal antibody" because it appears that binding is occurring and it is unclear what the monoclonal antibody is binding to. Although, the claim recites a solid support in the preamble of the claim, the body of the claim does not make clear if the monoclonal antibody is added to the solid support and binding occurs between the solid support and the antibody to immobilize the antibody to the solid support or if the antibody is binding to something else.

Claim 1, line 3 the recitation "unbound monoclonal antibody" does not make clear if Applicant is referring to the first monoclonal antibody recited in line 2 or if Applicant intends another monoclonal antibody.

Claim 1, lines 2-3 the recitation "washing with buffer to remove unbound monoclonal antibody adding a stabilizer" is vague and indefinite because it is unclear if the stabilizer is the buffer or if a stabilizer is added after washing with a buffer. It appears that the adding stabilizer is a separate step. Perhaps, Applicant intends a comma to be added after the recitation "unbound monoclonal antibody".

Claim 1, line 4 the recitation "the bound stabilizer" there is insufficient antecedent basis for this limitation. The recitation implies binding but the claim fails to clearly establish antecedent support that binding has occurred.

Claim 1, line 5 the recitation "said protein mixture" there is insufficient antecedent basis for this limitation.

Claim 1 is vague and indefinite because it is unclear what element is stored in a sealed package. Is the protein mixture stored and sealed? Is the solid support recited in the preamble of the claim stored and sealed? Please clarify.

Claim 2 the recitation "the protein/antigen" there is insufficient antecedent support for this limitation.

Claim 3 is vague and indefinite in reciting "the first monoclonal antibody used". It is unclear in what reference the term "used" is utilized in the claim. Claim 1 from which claim 3 depends does not recite the form of use.

Claim 1, line 4 the phrase "preferably" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim 7 is confusing because claim 1 recites air-drying and claim 7 recites the drying is either freeze drying or lyophilization. It is unclear if the freeze drying or lyophilization is to replace the air-drying recited in claim 1 or if it is in addition to the air-drying. Further, if it is in addition to air-drying it is unclear what other components are being dried.

Claim 8 the recitation "the blocking agent" there is insufficient antecedent basis for this limitation.

Claim 10 the recitation "the material" there is insufficient antecedent basis for this limitation.

Claims 12 and 13 are vague and indefinite in reciting improper antecedent basis for second antibody. The recitation "wherein second antibody" does not make clear if Applicant is referring to the second antibody recited in claim 1 or another antibody. It is recommended to recite --wherein the second antibody"--.

Claim 14 is vague and indefinite in reciting improper antecedent basis for third antibody. The recitation "wherein third antibody" does not make clear if Applicant is referring to the third antibody recited in claim 1 or another antibody. It is recommended to recite --wherein the third antibody"--.

Claims 16, is vague and indefinite in reciting improper antecedent basis for ready-to-use solid support. The claim does not make clear if ready-to-use solid support is the

solid support of claim 1. It is recommended to recite --using the solid support of claim 1--.

Claim 16, line 2 the recitation "the ready to use plates" there is insufficient antecedent basis for this limitation.

Claim 16 the recitation "appropriate" is a subjective term lacking a comparative basis for defining its metes and bounds. There is no definition provided for the term in the specification and it is unclear what Applicant is trying to encompass.

Claim 16 the recitations "suitable buffer" and "suitable wavelength" are subjective terms lacking a comparative basis for defining its metes and bounds. There are no definition provided for the terms in the specification and it is unclear what Applicant is trying to encompass.

Claim 16, line 5 the recitation "the plate" there is insufficient antecedent basis for this limitation.

Claim 16 is vague and indefinite in reciting "required chemical substrate". It is unclear what the chemical substrate is required for in the method or what relationship the chemical substrate has with the other elements of the assay method. Does the chemical substrate stabilize or wash? Is the chemical substrate specific for an enzyme or other reagent?

Claim 19 the recitation "of ready to use solid support" is vague and indefinite because it is not clear if this "of ready to use solid support" is the solid support recited in claim 1 or not. Please clarify.

Claim 20 the recitation "A ready-to-use solid support of claim 1" is vague and indefinite because it is not clear if this "a ready-to-use solid support" is the solid support recited in claim 1 or not. It is recommended to recite - -The ready-to-use solid support of claim 1--.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 2, 4, 5, 7-11, 16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rech-Weichselbraun et al (US 2004/0171087) in light of Sawyer et al (US 5,602,041) and in view of Gatto-Menking et al (US 2003/0108973).

Rech-Weichsebraun et al discloses a ready-to-use solid support, kits and methods of making and using the solid support. Rech-Weichsebraun et al disclose preparing microtiter plates (solid support) for use in detecting analytes in a sample (abstract, pgs 1-4). Rech-Weichselbraun et al disclose precoating the wells of the microtiter plate with antibody (abstract, para 0001, 0050-0053) specific for the analyte of interest. Rech-Weichselbraun et al disclose contacting the plate with a first antibody and washing with buffer such as phosphate buffer saline (e.g. para 0053-0054). Rech-Weichsebraun et al disclose blocking the plate by the addition of phosphate buffer saline (note : same reagent as claimed in claim 6) and bovine serum albumin (para. 0056). As shown by Sawyer et al ('041) blocking reagents (stabilizers) such as bovine serum albumin and fish gelatin provide for stabilizing the specifically bound biomolecules and prevent denaturation that can result in loss of immunological or enzymatic activity (e.g col 1, lines 13-42). Rech-Weichsebraun et al disclose removing excess blocking reagent (stabilizer) (e.g. para 0059). Rech-Weichsebraun et al disclose drying the plate with a circulating drier (air-drying) (e.g. para 0059). Rech-Weichsebraun et al disclose that the wells of the plate additionally comprise the detection reagents in lyophilized form and disclose that mixtures of the detection

reagents are added to the well and lyophilized (e.g. para's 0031-0035, p. 4). Rech-Weichsebraun et al disclose that the detection reagents can be a detection antibody (second antibody) and an enzyme-coupled antibody (third antibody) against the detection antibody (e.g. para 0046). Rech-Weichsebraun et al disclose storing the solid support and components in a kit (e.g. abstract, para 0029, pgs 3-4). Rech-Weichsebraun et al disclose that the microtiter plate can comprise polystyrene (para. 0048). Rech-Weichsebraun et al disclose the solid support can be used in ELISA methods for the detection of an analyte in a sample (e.g. para 0035, pgs 4-7). Rech-Weichsebraun et al disclose reconstituting the plates with distilled water (e.g. pgs 4-7) and adding sample, incubating, washing, adding substrate and photmetrically detecting the complexes (e.g. pgs 2-7). Rech-Weichsebraun et al discloses that the analyte can be proteins, steroids, chemical compounds, drugs, nucleic acids and similar substances (e.g. para. 0045).

Rech-Weichsebraun et al differs from the instant invention in failing to explicitly teach the precoated antibody is a monoclonal antibody. Rech-Weichsebraun et al also fails to explicitly teach storing in a sealed package.

Gatto-Menking et al teaches that it is known and conventional in the art to immobilize monoclonal antibodies to solid supports and utilize the monoclonal antibodies for the specific detection of analytes such as proteins (e.g. para. 0045-0046). Gatto-Menking et al also teaches sealing components and containers and teaches that this provides for protection of the reagents and containers from exposure to contamination by air or moisture (e.g. para's 0065-0066).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate monoclonal antibodies such as taught by Gatto-Menking et al into the solid support and methods of Rech-Weichsebraun et al because Rech-Weichsebraun et al is generic with respect to the antibodies to be used as capture antibodies and Gatto-Menking et al teaches that it is known and conventional in the art to incorporate monoclonal antibodies to provide for the specific detection of analyte such as proteins (same analyte as disclosed by Rech-Weichsebraun et al.

It would have also been obvious to one of ordinary skill in the art at the time the invention was made to seal the reagents and supports of Rech-Weichsebraun et al because Gatto-Menking et al teaches that this provides for protection of the reagents and containers from exposure to contamination by air or moisture.

With respect to the pH range of the phosphate buffers as recited in the instant claims, the optimum pH of phosphate buffer can be determined by routine experimentation and thus would have been obvious to one of ordinary skill in the art. Further, it has long been settled to be no more than routine experimentation for one of ordinary skill in the art to discover an optimum value of a result effective variable. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum of workable ranges by routine experimentation." Application of Aller, 220 F.2d 454,456, 105 USPQ 233, 235-236 (C.C.P.A. 1955). "No invention is involved in discovering optimum ranges of a process by routine experimentation ." Id. At 458,105 USPQ at 236-237. The "discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." Application of Boesch, 617 F.2d 272,276, 205 USPQ 215, 218-219 (C.C.P.A. 1980).

10. Claims 3, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rech-Weichselbraun et al in view of Gatto-Menking et al as applied to claims 1, 2, 4, 5, 7-11, 16, 19 and 20 above, and further in view of Rogan et al (Food Control, 10, (1999), pgs 407-414).

See above for the teachings of Rech-Weichsebraun et al and Gatto-Menking et al.

Rech-Weichsebraun et al and Gatto-Menking et al differ from the instant invention in failing to teach the monoclonal antibody is against 5-enolpyruvylshikimate-3-phosphate synthase and the detection antibody (second antibody) is a IgG polyclonal antibody directed against 5-enolpyruvylshikimate-3-phosphate synthase.

Rogan et al disclose ELISA methods for the determination of 5-enolpyruvylshikimate-3-phosphate synthase protein in a sample. Rogan et al disclose the use of immobilized monoclonal antibody raised against 5-enolpyruvylshikimate-3-phosphate synthase (e.g. abstract, pgs. 408-409) to capture the 5-enolpyruvylshikimate-3-phosphate synthase and contacting captured 5-enolpyruvylshikimate-3-phosphate synthase with a polyclonal IgG detection antibody (second antibody) (abstract, pgs 408-409).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate capture and detection antibodies such as taught by Rogan et al into the modified method of Rech-Weichsebraun et al because Rech-Weichsebraun et al is generic with respect to the protein that is to be detected and one would use the appropriate reagents, i.e. capture and detection antibodies such as taught by Rogan et al to detect the desired protein, in this case 5-enolpyruvylshikimate-3-phosphate synthase.

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rech-Weichselbraun et al in view of Gatto-Menking et al as applied to claims 1, 2, 4, 5, 7-11, 16, 19 and 20 above, and further in view of Vogt et al (Journal of Immunological Methods, 101, (1987) pgs 43-50).

See above for the teachings of Rech-Weichsebraun et al and Gatto-Menking et al.

Rech-Weichsebraun et al and Gatto-Menking et al differ from the instant invention in failing to teach the blocker (stabilizer) used is fish gelatin.

Vogt et al teaches that it is known in the art to utilize fish gelatin as a blocking reagent (e.g abstract, p. 48) and teaches that fish gelatin is an excellent blocker and is readily available without need for further processing (e.g. p. 49) and provides higher inhibition than that of BSA (Table II, pg 48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute fish gelatin such as taught by Vogt et al for the BSA of Rech-Weichsebraun et al because Vogt teaches that fish gelatin is an excellent blocker and is readily available without need for further processing and provides higher inhibition than that of BSA in Elisa assays.

12. Claims 14, 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rech-Weichselbraun et al in view of Gatto-Menking et and Rogan et al as applied to claims 1-5, 7-13, 16, 19 and 20 above, and further in view of Padgette et al (Crop Science, 35: (1995), pgs 1451-1461).

See above for the teachings of Rech-Weichsebraun et all, Gatto-Menking et al., and Rogan et al.

Rech-Weichsebraun et al., Gatto-Menking et al and Rogan et al differ from the instant invention in failing to teach third antibody is obtained from the class Mammalia. Rech-Weichsebraun et al., Gatto-Menking et al and Rogan et al differ also fails to teach the enzyme is alkaline phosphatase and the substrate is para-nitrophenol.

Padgette et al discloses indirect Elisa methods for the detection of 5-enolpyruvylshikimate-3-phosphate synthase protein and teaches that it is known and conventional in the art to utilize a third antibody directed against the detection antibody and teaches that this antibody can is obtained from the class mammalia (e.g. p.1454) and is directed rabbit antibody (same secondary antibody as used by Rogan et al). Padgette et al also teaches that it is known and convention to utilize alkaline phosphatase as the enzyme and para-nitrophenyl phophatase as the substrate for this enzyme (p. 1454).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate donkey anti-rabbit alkaline phosphates antibodies and substrates such as taught by Padgette et al into the modified method of Rech-Weichsebraun et al because Padgette et al shows that such reagents are known and conventional in Elisa methods for the detection of 5-enolpyruvylshikimate-3-phosphate synthase and thus one of ordinary skill in the art would have a reasonable expectation of success incorporating donkey anti-rabbit alkaline phosphates antibodies and

substrates such as taught by Padgette et al into the modified method of Rech-Weichsebraun et al.

Conclusion

13. No claims are allowed.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McDonald et al (US 2009/0098583) teaches that it is known and conventional in Elisa methods to utilize carbonate buffer at pH 9.6 (e.g. para 0087).

Malvar et al (US 6,645,497) disclose Elisa principles for detection transgenic plant proteins (e.g. col's 11-12).

Adang et al (US 2004/0254364) discloses primary and secondary anti-Cry1ac antibodies utilized in Elisa assays (e.g. para 108).

Corbin et al (US 2007/0028324) discloses and Elisa method for the detection of Cry2ab and discloses the use of primary and secondary antibodies directed against Cry2ab in the method (e.g. para's 0241, 0259, 0262).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GARY W. COUNTS whose telephone number is (571)272-0817. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Shibuya can be reached on (571) 272-0806. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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